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THE CRITERION OF TRUTH.

A DISSERTATION ON THE METHOD OF VERIFICATION.

MODERN science rests upon the recognition of the truth that all knowledge is a statement of facts. The formulation of natural laws is nothing but a comprehensive description of certain kinds of natural processes. Natural laws are generalisations of facts. Similarly, any philosophical theory is, or from the modern standpoint ought to be, simply a systematised representation of facts. Facts are the bottom-rock to which, everywhere, we have to go down.

The recognition of this maxim is called, most appropriately, positivism ; and I take it that as a matter of principle all modern thinkers can and perhaps do agree to it. A Roman Catholic philosopher may consider some things as facts which a scientist of heretic England, for instance, does not ; yet it is from facts, or what is thought to be facts, that every one derives his conception of the world.

It is natural that the range of individual experience should be very limited in comparison with the knowledge indispensably needed for acquiring an adequate conception of the world in which we live. We have, to a great extent, to rely on statements of facts which we ourselves have not observed. To enrich and to enlarge our own experience we have to imbibe the experience of others. Sometimes we can, but sometimes we cannot, verify what we have been told. For instance, that stones fall through empty space with a velocity of 32.18 English feet at the end of the first second can be verified by experiment, i. e., the experiment can be repeated under the same circumstances. But historical data such as whether Buddha died under a fig-tree, or whether Christ was crucified under

Pontius Pilate, cannot be verified by experiment. Historical data are statements, not of general truths, but of single facts, which, if they are accepted at all, have to be taken on authority. The authority may be weak or strong ; it may be strong enough to be equivalent practically to a certainty, which latter case occurs, for instance, when the fact in question in its direct consequences perceptibly affects our life, and its causal connection can thus be directly and indubitably traced.

It is not intended here to emphasise the difference between facts verifiable by experiment, and historical facts ; yet it is desirable with reference to all kinds of facts stated on authority, to understand the importance of a criterion of truth. We do accept and we have to accept, every one of us, without any exception, the most discriminate scientist even and most of all the philosopher, innumerable statements of facts as they have been observed by others. We all have to rely on the authority of others. The time of the longest human life would be too short to repeat all the experiments made by others, with a view to verifying them in detail. On the other hand, it is obvious that no statement of facts should be accepted on pure authority. We must have a means, a sieve as it were, by which the wheat can easily be winnowed from the chaff ; a sieve that will enable us to discard at once those statements that are positively erroneous. In this way our attention can be confined to statements of things that are possible, those that need not, but *may* be true. "Possible" in German is very appropriately called *möglich*, i. e. *mayable*.

The criterion of that which 'may be' true is the first step towards ascertaining truth ; and although it does not exhaust the methods of arriving at truth it is of greatest consequence, for if properly understood and applied, it would save from the start many useless efforts in the investigation of truth.

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The question arises then, What is the criterion of the possible ? We reject statements, sometimes, as *prima facie* untrue. Have we a right to do so ? And if we have, by what standard do we determine this ?

Let us first take into consideration how people really behave when a statement of new facts is made. Take, for instance, the following case. Two strangers meet ; A. and B. Mr. A. relates to Mr. B. some incident of his life. He is apparently a very trustworthy person and during the conversation remains perfectly serious. He tells a ghost story in detail, how a departed friend of his appeared to him in distinctly visible form ; he says that the spirit spoke to him and told him many strange things, and that he pointed out to him an imminent danger.

We suppose that on the one hand A. makes his statement in good faith and that on the other hand B. is a spiritualist. Will B. consider A.'s story as possible ? B., being a spiritualist, most probably will consider A.'s story as possible, and, if he is convinced of A.'s honesty, he will believe the story the same as if he had experienced it himself ; no less than a scientist will rely on the statement of an experiment made by one of his colleagues whose scientific veracity he has no reason to doubt.

Suppose A. tells the same story to C. Mr. C. is an infidel and a materialist. As characteristic features of his personality we might mention that he considers religion as pure superstition originated by the fraud of cunning priests. This man will, we may fairly suppose, laugh at A.'s story, because it appears to him an out and out lie. Mr. A. as well as Mr. B., he who tells and he who believes the story, C. will declare, are either insane or they are both impostors.

The difference of opinion in B. and C. indicates that the criterion of truth is different with different persons and that it depends upon their conception of the world. Men who have the same world-conception will also have the same criterion of truth.

The problem consequently is, whether this criterion of truth (i. e. the criterion of what is possible) is necessarily wholly subjective, or whether we can arrive at an objective criterion. It is apparent that this question is intimately connected with another problem, namely, Is every world-conception necessarily subjective, or, Is it possible to arrive at an objective world-conception ? It appears to me that we can ; and the ideal of philosophy to-day is just such an objective representation of facts.

The difficulty that presents itself lies mainly in the confusion between facts and our interpretation of facts. If A. declares that he saw a ghost, he does not relate a fact, but his interpretation of a fact. Let us suppose that he tells his story again to a third person D., who is a psychologist. D. most likely will not think him a liar. D. will accept the statement *bona fide* as a mere interpretation of a fact and will inquire after the causes that produced the hallucination. He may be able, possibly, to lay bare the facts disfigured by the wrong interpretation of A. And having clearly stated the objective state of things he may with the assistance of his experience explain the origin of the whole process, partly from the mental condition and the physiological constitution of A., partly from individual circumstances that gave rise to the hallucination. He will not doubt that something extraordinary has happened to Mr. A. The latter's mind has been, and perhaps still is in an abnormal state. And as to B.'s believing the ghost story, Mr. D. will not think that he is insane; though we may presume that he will regard B.'s views of the world as resting upon unfirm grounds; and he will not believe him to be a man of critical ability.

The notion is very common among idealists that we can never go beyond our subjective states of consciousness. This would be tantamount to saying that there is no difference between dreams and real life, except that a dream is cut off by awaking while life lasts comparatively much longer and ceases with death, which may also be an awakening from a dream. In that case hallucinations would be of the same value as sensations. Both would be interpretations of facts for which we do not have an objective criterion of truth. Interpretations of facts would be the sole facts, and it would be quite indifferent whether they were misinterpretations or correct interpretations.

Take a simple instance. We see a tree. The perception of a tree is an interpretation of a set of facts. Interpretations of facts, whether correct or not, are of course also facts. Thus the perception of a tree is a fact which, if all matter were transparent, would, physiologically considered, appear to the eye of an observer as special vibrations in the brain. But the peculiarity of this fact is that

it represents other facts. The question is no longer whether there is a perception of a tree taking place in a brain, but whether this perception is true, i. e., whether it agrees with the facts represented. Every perception has a meaning beyond itself; every perception is a fact representing other facts, and the question of truth or untruth has reference to the agreement between representations and facts represented.

Professor Mach says in his essay "The Analysis of Sensations" (*The Monist*, Vol. I. No. 1, p. 65):

"Bodies do not produce sensations, but complexes of sensations (complexes of elements) form bodies."^{*}

And, certainly, we do not deny that upon a closer analysis the perception of a tree appears as a bundle, or a complex of sensations; there is the green of the leaves, the color of the bark, the different shades of the color indicating its bodily form, the shape of the branches, and their slight motions in the breeze that gently shakes the tree. Yet the perception of a tree does not consist of these sensations alone. All these sensations might be so many isolated sensations; and if they remained isolated, they would not produce the percept of a tree. These sensations are interpreted; they have acquired a meaning and are combined into a unity. It is this unity which constitutes the perception of a tree. This unity has grown from sensations; and that process which develops and, as we have learned, naturally must develop sensations from sense-impressions, and from sensations perceptions that are representative of a group of facts outside of the perceptions themselves,—that process we define as mind-activity.

What does the 'perception of a tree' mean? It means that if the person perceiving it moves in a certain direction and over a certain distance, he will have certain sensations which upon the whole can be correctly anticipated. Every perception and also every sensation contains a number of anticipations. The perception

* Professor Mach in thus speaking of bodies uses the word in the sense of representations and not in the sense of objects represented. He calls them in the sentence next following "thought-symbols for complexes of sensations (complexes of elements)."

of a tree is in so far to be considered correct, as the anticipations which it contains, and of which it actually consists, can be realised. If and in so far as these anticipations when realised tally with the perception, if and in so far as they justify it, or can justify it, if and in so far as they fulfil the expectations produced by the perception, if and in so far as they make no alteration of the perception necessary, but being in agreement with it confirm the representation it conveys: the perception is said to be true. Moreover, we can predict similar results with regard to beings of a similar constitution.

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Now let us suppose that an apple falls from a considerable height to the ground. Knowing, from former experiences, the hardness of the soil as well as the density of the apple, we can anticipate the effect of the fall. The soil will not show any considerable impression, yet one side of the apple will be crushed. In predicting this result we anticipate sensations that we shall have under a certain set of circumstances. In so far as we shall necessarily have these sensations we have to deal with facts. Not as if our sensations constitute the entire existence of facts; our sensations, being the effects of so-called objective processes upon our senses, are only one end of a relation, which as a matter of course never exists without the other end. Sensations are the one end; they depend upon and vary with the other end. Showing within certain limits as many varieties here as occur there, they represent the other end.

We can, and for certain purposes we must, entirely eliminate the subjective and sensory part of our sensations, in order to represent in our minds not how two objects affect our senses of sight or touch but how two or more objects affect each other. Thus we arrive at an objective statement of facts, how the falling apple affects the soil, and the soil the apple; while the relation of both to our senses is to be eliminated. This objective statement of facts is the ideal of all natural sciences. The physicist states the interaction between the falling apple and the soil. He does not care how many sentient beings witness the fall; he does not care about the psychological element in their observations. He abstracts from the subjective ele-

ments in their observations as well as in his own, and confines his attention to the objective facts represented in their minds.

The objection to this conception of things is made by a consistent idealist, that these observations must always exist in some mind, they do not exist outside of a mind, and mind can as little go beyond itself as a person can walk outside of his skin. Certainly, observations always exist in some mind ; they have always a subjective element. But they have also an objective element. No sensation, no perception, no observation is without an objective feature. This objective feature in a sensation or a perception, and also in an abstract idea, is the element that if true has to agree with other facts outside of the sentient being of whose mind the perception is a part. An idealist who is pleased to deny this would either have to identify hallucinations with sensations, or he would be obliged to consider the objective elements of his mind merely and solely as subjective states, having no representative value. In that case he would necessarily be obliged to consider the facts represented, i. e. the things outside the body, as parts of his mind. This being granted, every mind would appear as congruent and coextensive with the universe. We should have as many universes as there are minds, and yet all universes would be only one and the same universe, their sole difference being that of a difference of centres. With the death of every living creature a universe would die ; but notwithstanding the chain of consciousness were broken forever in death, the existence of his mind, being that which is commonly considered as the objective universe, would not cease ; merely a view-centre would be lost. That which we have characterised as representations in feeling-substance (which according to our terminology constitutes mind) would be a transient and unessential feature of mind only ; and if it should cease to be, mind would still exist in what we have defined as the outside facts, the facts represented in mental symbols. In short, mind would be the All, it would be a synonym of God. And not only all mental beings actually existing or having existed would each, one and all, constitute the universe, but also all potential minds, every atom and all possible combinations of atoms that possibly might

play a part in the mental activity of a sentient being, would constitute it.

The views of an idealist who accepts these consequences are undeniably correct, although we may quarrel about the propriety of his terminology. Yet an idealist of this type, we may fairly assume, will have little difficulty in adapting himself to our terminology, and in that case we might easily agree about the possibility of arriving at a criterion of truth; for his world-conception (aside from a difference in terms) might, or rather would be practically the same as ours.

If truth is the agreement of certain mental facts with other facts outside of the mind—if it is the agreement of subjective representations with objective things or states of things represented, the problem is whether we have any means of revising or examining this agreement.

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If the world were a chaos, i. e. if the facts of nature were not ruled by law; if every fact were not only individually but also generically different from every other fact, so that no single fact had anything in common with other facts; if they thus had no features in common, there would exist no general properties, and we could form no concepts of *genera*; facts would vary radically and totally, without exhibiting regularities or uniformities other than such as might occasionally and without any reason incidentally originate by haphazard,—in short, if our world were a world of chance and not of law, there would be no criterion of truth. Our world, however, is a world of law and not of chance. Thus all facts, although individually different, are found generically to agree among themselves. No two atoms are, with regard to their position, the same at a given moment; all of them are different somehow in their operation and effectiveness. Nevertheless every one of them moves in strict accordance with exactly the same law of causation. There is not the least change taking place in the universe which is not the precise effect of a special cause. There is rigidity in mutability, unity in variety, determinateness in irregularity, law in freedom, order in anarchy. The unity of law, which in its oneness is comprised in the

universality of causation, is so perfect that the different facts cannot be thought of as being generically different. However much they differ specifically, they represent the action of the same law, and this same oneness of nature is the basis of all monism.

Monism of this kind, it has been remarked by a critic of ours,* is identical with philosophy. Certainly it is. Every philosophy is or at least attempts to be monism, and in so far only as a philosophy recognises monism does it possess a criterion of truth. This monism may be based upon a correct or a mistaken conception of unity. Upon the correctness of this monism will depend the correctness of the criterion of truth. But it must be understood that without a monism there can be no criterion of truth, and philosophy must become either scepticism, mysticism, or agnosticism.

What then is the criterion of truth for a single fact, be it a sensation, a perception, or an observation? It is this, that if the observation be repeated under the same circumstances it will, to the extent that the circumstances are the same, be again the same; the observer will always make the same observation.

This maxim will do for a statement of facts. If according to this maxim we are in the position to ascertain that the same observation can be made again and again under certain conditions, we gain the assurance that we have to deal with a fact of some kind. But how shall we inquire into the correctness of the interpretation of the fact?

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Every living creature and furthermore among human beings every individual man has an idiosyncracy of his own. How can we

* *The Nation* quotes the following passage from a former essay of mine: "The philosophy of the future will be a philosophy of facts, it will be *positivism*; and in so far as a unitary systematisation of facts is the aim and ideal of all science, it will be *monism*." *The Nation* rejects this definition of monism and adds: "The search for a unitary conception of the world or for a unitary systematisation of science would be a good definition of *philosophy*; and with this good old word at hand we want no other."

Very well. Call that which we call monism or a unitary systematisation of knowledge, "philosophy"; we will not quarrel about names—*dummodo conveniamus in re*. We agree perfectly with our critic; for we also maintain that monism (at least, what we consider monism) is philosophy; it is *the* philosophy.

avoid the errors arising therefrom? We substitute other observers so that we can detect to what extent the individual way of observation influences the result of the experiment. Thus we shall find that some persons are color-blind with reference to red or to green, and we can in this way explain certain mistakes caused by such conditions.

Supposing that all human beings were color-blind we should consider this state as normal; and the discovery of science that certain colors which appear alike to us, are after all, considering their wave-lengths and other qualities, more different than certain other tints which are easily discerned by the eye, would be an unexpected surprise. It would to some extent be analogous to the well-known fact that there are rays of light which are not perceptible to the eye, namely, the so-called chemical rays; their existence has been discovered by their chemical effects.

It might be, although it is not probable, that what appears green to me and what I call green, may appear different to other people, perhaps gray, red, or brown, or some other color that I know not of: yet other people will—just as much as I do—call that peculiar sensation green which they experience under the same conditions, for instance, when seeing the fresh leaves of a tree. It is quite indifferent how variegated in single minds the feelings may be that accompany each kind of sensation. So long as they have for every special objective state a special analogue, they can map out in their minds their surroundings, they can have a correct representation of the world, and so long as they employ the same symbols (words or other signs) for indicating the same objective states, it is quite indifferent whether or not the feelings that are produced in the process of observation vary. It would make no more difference for the general purpose of mental operations, than it would if we were to employ Roman letters, or Italics, or Greek or Hebrew characters to designate the lines and points in explaining a mathematical figure. The main thing is that certain points are marked and represented by some sign which stands for this or that point and for that alone.

To cite another example in illustration of the subjective ele-

ment of feeling in cognition, we may compare our knowledge of the world to the map of a city. The map may be printed in black, green, red, blue, or any other color. The color in which the map is printed represents the subjective element of feeling, while the form of the lines, their geometrical configuration, contains the objective element of the things represented. The map is good, i. e. its representations are true, if the squares and the streets of the city stand in the same relation among each other, as the little blocks and divisions on the map do. Whether the map is printed in green or blue will make no difference so long as we find everything we want to know about the city represented in a way such that we should be able to set ourselves aright and to find our bearings if we went astray.

The subjective element in mind is not of one half the importance generally attributed to it. The objective element, being that which is represented, is paramount, and it is the aspiration of all the sciences to concentrate their entire attention upon the objective features of observation. Objective truth is what we want, and objective truth is identical with a scientific description of facts.

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What then is the criterion of objective truth for the interpretation of facts? Is it not wanting? May it not be that a person, Mr. A., will under given circumstances regularly see a ghost. Indeed we do not doubt that he will, and we can even prove it by experiment. This being so, is not the interpretation of facts as to whether the phenomenon is a real ghost or a mere vision, beyond any criterion of truth?

If the methods of science are reliable, (and they have been justified by their brilliant success,) we have indeed a criterion for the interpretation of facts; and this criterion for the interpretation of facts, no less than the criterion of single observations is based upon monism. If the world is really a universe, if there is oneness in the All, if there is a unity of law throughout nature, our interpretations of the different facts must agree among themselves. They cannot and should not contradict one another; and whenever they do, it is

a certain sign that somewhere there is something wrong in our interpretation of facts.

Philosophy has ceased to be a metaphysical world-theory. The interpretation of facts no longer means a hypothetical assumption which will square all the irregularities among facts that we are unable to account for, but simply a methodical systematisation of facts, enabling us to recognise the sameness of law in the irregularities apparent in innumerable individual instances. Interpretation in this sense means harmonisation ; it means an orderly arrangement ; classification with due discrimination. An explanation of natural phenomena is not the carrying of an hypothesis into facts out of the realms of our imagination, out of depths unknown, by what might be styled revelation or inspiration, but it is a comparison of facts with facts. The hypothesis we apply to facts must come from facts and must cover facts. That element in an hypothesis which does not cover facts is redundant as an explanation ; it is useless as such, or even dangerous ; and unless it serves as an aid to thought where ignorance of facts requires some assistance, some allegorical symbol, some auxiliary construction,—unless it is to the scientist what crutches are to the lame,—it must be dropped.

Accordingly, the criterion of truth is the perfect agreement of all facts, of all interpretations and explanations of facts among themselves. If two facts (such as we conceive them) do not agree with each other, we must revise them ; and it may be stated as a matter of experience, that our mind will find no peace until a monistic conception is reached. A monistic conception is the perfect agreement of all facts in a methodical system, so that the same law is recognised to prevail in all instances, and the most different events are conceived as acting under different conditions yet in accord with the same law.

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It does not lie within the scope of this essay to enter upon the practical application of the principle which we have set forth as the criterion of truth. One hint only may be supplied, to point out the most obvious maxim derivable from it—a maxim that is instinctively

obeyed by all scientists and has often been popularly expressed in the sentence: An ounce of fact is worth a hundred pounds of hypothesis, or of any interpretation of facts. All the theories in the world, scientific and economical, our dearest ideals not excepted, and all the most ingenious hypotheses have no value unless they have been derived from, and agree with, the laws that live in the facts of our experience.

The trouble of applying this rule lies mainly in the difficulty of distinguishing between facts and our interpretation of facts. Considering that mind is representativeness in feelings we have to analyse the mind in order to come down to objective facts. The percept of a tree is not the tree; it is an interpretation of a group of facts; it is a mental picture produced by a synthesis of sensations, the latter being caused by sense-impressions. Considering that all the images, ideas, abstract concepts, and theories of which our mind consists are not the facts represented by them but their several interpretations, we at once see how careful we have to be for purposes of philosophical and scientific exactness in the statement of facts.

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On this occasion, a few critical remarks concerning the leading essay of this number, "The Architecture of Theories," by Mr. Charles S. Peirce, may be added. Mr. Peirce is one of our subtlest thinkers and logicians, and it is incumbent upon one to reflect twice before criticising any sentence of a man who writes upon the most recondite topics,—upon what I should call the higher mathematics, the differential and integral calculus of logic,—with ease and masterly accuracy. Mr. Peirce's essay "The Architecture of Theories,"* presented in this number of *The Monist*, is the first publication of his in which he propounds not mere criticism or the

* The term "architecture of theories" seems inappropriate from the standpoint of a positive conception of the world. Many monisms have been constructed in the way Mr. Peirce so well describes in his comparison of these philosophical systems to the building a house of one and the same material, for instance *papier mâché*, with roof of roofing paper, foundations of paste-board, windows of paraffined paper, etc., etc. Philosophy, however, is not a construction of a theory comparable to the building of an edifice; it is rather the mapping out of the house in which we live for the purpose of orientation.

discussion of abstruse logical subjects, but his own positive opinion, presenting in great and clear outlines the foundations of his philosophy.

The world-conception of Mr. Peirce agrees in one fundamental maxim with our own, but it disagrees with the latter in the main and most important application of this maxim. Mr. Peirce says, “Law is *par excellence* the thing that wants a reason.” This maxim was the guiding star of our inquiry into the fundamental problemis of philosophy.* The world considered as a universe displaying in all its innumerable actions one and the same law is called a cosmos; if considered as a heap of processes with no common law pervading them it is called a chaos. We found in our inquiry into the forms of existence that the laws of form possess intrinsic necessity. The laws of the form of existence are represented in the laws of formal thought (arithmetic, mathematics, logic, mechanics, and pure natural science). So long as the formal laws hold good, (and we have found in the chapter “Form and Formal Thought” that they will hold good under all circumstances,) any kind of world, whatever materially or dynamically it be, must be a cosmos, and cannot be a chaos. We can imagine that we had a world consisting of some other substance and being different either in the amount or in the action of its energy to this world of ours, but we cannot imagine that a world should exist which does not exhibit the harmony of form, and is not regulated as it were by the formal laws of existence. One plus one would be two in any kind of a world, and obviously all the other more complex statements of formal laws would remain true with the same intrinsic necessity. The truth ‘one plus one makes two’ contains the universal applicability of causation and of the conservation of matter and energy. Taking this ground we arrived at the conclusion that the world is a cosmos: there is no chaos and there never has been a chaos. A chaos, in the sense of an absolute non-existence of law, is an impossibility.

Accordingly, we cannot agree with Mr. Peirce that the occurrence of chance “calls for no particular explanation.” There is no

* See the author's *Fundamental Problems*.

chance, if chance means absence of law. Chance, if the word be admissible, is a mere subjective conception produced by limited knowledge and signifying a state of things not determinable with the means of knowledge at our disposal. Law once recognised is the death of chance (in the objective sense of the word); and chance, or sport, or chaos, or indeterminacy, or whatever one may call the absence or at least the imperfect cogency of law, far from "calling for no particular explanation," must be classed *prima facie* among those theories that are *per se* impossible. These conceptions whether applied to the world at large or to special processes of nature are in contradiction to those interpretations and systematised statements of facts which are most fundamental, most reliable, most indispensable and universal. Whatever generalisation the theory of evolution may be capable of, it is certainly not capable of being applied to law. The formal order of Nature and especially the mechanical laws of physics cannot be thought of as having been developed out of a state of sportive chance; they must be considered as having always been the same as they are now: they are eternal.*

In stating this difference of opinion, I apprehend a possibility that although Mr. Peirce has stated his case with most admirable and I should say unequivocal clearness, I have misunderstood his views. In a former article of his, Mr. Peirce makes a statement concerning Nature considered as a possible chaos, which seems to concur rather with my views on the subject than with his own. Mr. Peirce says in his fourth Paper on the "Illustrations of the Logic of Science":

"If there be any way of enumerating the possibilities of Nature so as to make them equally probable, it is clearly one which should make one arrangement or combination of the elements of Nature as probable as another. . . . It would be to assume that Nature is a pure chaos, or chance combination of independent elements, in which reasoning from one fact to another would be impossible; and since, as we shall hereafter see, there is no judgment of pure observation without reasoning, it would be to suppose all human cognition illusory and no real knowledge possible.

* Mr. Peirce seems to define Mind as sportive chance; for according to his theory, as soon as sportiveness assumes fixed habits, it settles into the mechanical motions which physical science observes in gravitating masses; and matter is thus defined as "effete mind."

It would be to suppose that if we have found the order of Nature more or less regular in the past, this has been by a pure run of luck which we may expect is now at an end. Now, it may be we have no scintilla of proof to the contrary, but reason is unnecessary in reference to that belief which is of all the most settled, which nobody doubts or can doubt, and which he who should deny would stultify himself in so doing.

"The relative probability of this or that arrangement of Nature is something which we should have a right to talk about if universes were as plenty as blackberries, if we could put a quantity of them in a bag, shake them well up, draw out a sample, and examine them to see what proportion of them had one arrangement and what proportion another. But, even in that case, a higher universe would contain us, in regard to whose arrangements the conception of probability could have no applicability.

I rest the case here in the hope that the statement of both sides of the problem will contribute to elucidate truth.

EDITOR.